

**Notice of Allowability**

Application No.

09/828,202

Examiner

Esaw T. Abraham

Applicant(s)

SHIEH, JIA-HORNG

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/05/02.
2. ☒ The allowed claim(s) is/are 1-33.
3. ☒ The drawings filed on 09 April 2001 and 21 January 2005 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
**DAVID TON**  
**PRIMARY EXAMINER**

20

**DETAILED ACTION**

***EXAMINER'S AMENDMENT***

1. An examiner's amendment to the record appears below. Should the changes and or additions be acceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Andrew D. Fortney, Ph. D on 07/12/05.

2. The application has been amended as follows:

**As per claim 1:**

Line 4, change "comprising scrambled data" to --comprising main data--

Line 9, change "said scrambled data" to --said main data--

**As per claim 5:**

Line 13, change "writing corrected scrambled main data" to --writing corrected main data--

**As per claim 7:**

Line 3, change "comprises scrambled data" to --comprises main data--

***Examiner's statement for reason for allowance***

3. Claims 13-20 have been previously allowed.

4. Claims 1-12 and 21-33 have been allowed.

The following is an examiner's statement for allowance:

**As per claim 1:**

Art Unit: 2133

Applicant's submitted prior art's figure 1 disclosed a conventional decoding system in a DVD storage system includes, a demodulator (see element 102) reads data and the data stored in the disk (see element 100) whereby the demodulator generates an ECC block (see element 107) and transmits to a data buffer (see element 106) wherein the ECC block comprises main data, PI (parity inner code), PO (parity outer code). Further, the prior art of record, Iwasa (U.S. PN: 6,470,473) disclose a DVD data decoding processing system (see figure 3, reference number 30) includes a DVD reproducing unit (see element 32) and a buffer memory (see element 34) whereby the DVD reproducing unit includes a demodulating unit (see element 36) coupled to a PI syndrome generating unit (see element 38), an error correcting unit (see element 40), a PI syndrome storing memory (see element 48), a buffer memory (see element 42) having a memory capacity corresponding to a few lines, a PO syndrome generating unit (see element 44), a de-scrambling/EDC calculating part (see element 46), a PO syndrome storing memory (see element 50), an EDC calculation result storing memory (see element 52) and an error correcting part (see element 54), which are coupled as shown. However, the prior art taken singly or in combination fail to teach, anticipate, suggest, or render obvious a syndrome generator for generating a PI (Parity of Inner-code) direction syndrome and a PO (Parity of Outer-code) direction syndrome from an ECC (Error Correction Code) block comprising a main data, a PI, and a PO; a memory that stores said PO direction syndrome during generation of said PO direction syndrome; a data buffer for storing said main data from said ECC block, said PI direction syndrome and said PO direction syndrome; and an ECC decoder for performing error correction decoding of said main data stored in said data buffer, using said PI direction syndrome and said PO direction syndrome. Consequently, claim 1 is allowed over the prior art.

Claims 2-4 and 21-23, which is/are directly or indirectly dependent/s of claim 1 are also allowable over the prior art of record.

**As per claim 5:**

Applicant's submitted prior art's figure 1 disclosed a conventional decoding system in a DVD storage system includes, a demodulator (see element 102) reads data and the data stored in the disk (see element 100) whereby the demodulator generates an ECC block (see element 107) and transmits to a data buffer (see element 106) wherein the ECC block comprises main data, PI (parity inner code), PO (parity outer code). Further, the prior art of record, Iwasa (U.S. PN: 6,470,473) disclose a DVD data decoding processing system (see figure 3, reference number 30) includes a DVD reproducing unit (see element 32) and a buffer memory (see element 34) whereby the DVD reproducing unit includes a demodulating unit (see element 36) coupled to a PI syndrome generating unit (see element 38), an error correcting unit (see element 40), a PI syndrome storing memory (see element 48), a buffer memory (see element 42) having a memory capacity corresponding to a few lines, a PO syndrome generating unit (see element 44), a de-scrambling/EDC calculating part (see element 46), a PO syndrome storing memory (see element 50), an EDC calculation result storing memory (see element 52) and an error correcting part (see element 54), which are coupled as shown. However, the prior art taken singly or in combination fail to teach, anticipate, suggest, or render obvious a method of demodulating the data to generate an ECC block that comprises main data, a PI and PO, writing said main data into a data buffer, calculating a PI direction syndrome from said PO direction syndrome from said PO, and storing PO direction syndrome data in a memory during calculating said PO direction syndrome, writing said PI direction syndrome and said PO direction syndrome into said data buffer, reading said PI

Art Unit: 2133

and PO direction syndromes from said data buffer to an ECC decoder to perform error correction decoding of the PI and PO directions and when errors are found, correcting the PI direction syndrome and said PO direction syndrome and writing corrected main data into said data buffer. Consequently, claim 5 is allowed over the prior art.

Claims 6 and 24-26, which is/are directly or indirectly dependent/s of claim 5 are also allowable over the prior art of record.

**As per claim 7:**

Applicant's submitted prior art's figure 1 disclosed a conventional decoding system in a DVD storage system includes, a demodulator (see element 102) reads data and the data stored in the disk (see element 100) whereby the demodulator generates an ECC block (see element 107) and transmits to a data buffer (see element 106) wherein the ECC block comprises main data, PI (parity inner code), PO (parity outer code). Further, the prior art of record, Iwasa (U.S. PN: 6,470,473) disclose a DVD data decoding processing system (see figure 3, reference number 30) includes a DVD reproducing unit (see element 32) and a buffer memory (see element 34) whereby the DVD reproducing unit includes a demodulating unit (see element 36) coupled to a PI syndrome generating unit (see element 38), an error correcting unit (see element 40), a PI syndrome storing memory (see element 48), a buffer memory (see element 42) having a memory capacity corresponding to a few lines, a PO syndrome generating unit (see element 44), a de-scrambling/EDC calculating part (see element 46), a PO syndrome storing memory (see element 50), an EDC calculation result storing memory (see element 52) and an error correcting part (see element 54), which are coupled as shown. However, the prior art taken singly or in combination fail to teach, anticipate, suggest, or render obvious a syndrome generator for generating a PI

Art Unit: 2133

(Parity of Inner-code) direction syndrome and a PO (Parity of Outer-code) direction syndrome from an ECC (Error Correction Code) block comprising a main data, a PI, and a PO; a data buffer for storing said main data, said PI direction syndrome and a PO; and an ECC decoder for performing error correction decoding of said main data stored in said data buffer, using said PI direction syndrome and said PO. Consequently, claim 7 is allowed over the prior art.

Claims 8-10 and 27-30, which is/are directly or indirectly dependent/s of claim 7 are also allowable over the prior art of record.

**As per claim 11:**

Applicant's submitted prior art's figure 1 disclosed a conventional decoding system in a DVD storage system includes, a demodulator (see element 102) reads data and the data stored in the disk (see element 100) whereby the demodulator generates an ECC block (see element 107) and transmits to a data buffer (see element 106) wherein the ECC block comprises main data, PI (parity inner code), PO (parity outer code). Further, the prior art of record, Iwasa (U.S. PN: 6,470,473) disclose a DVD data decoding processing system (see figure 3, reference number 30) includes a DVD reproducing unit (see element 32) and a buffer memory (see element 34) whereby the DVD reproducing unit includes a demodulating unit (see element 36) coupled to a PI syndrome generating unit (see element 38), an error correcting unit (see element 40), a PI syndrome storing memory (see element 48), a buffer memory (see element 42) having a memory capacity corresponding to a few lines, a PO syndrome generating unit (see element 44), a de-scrambling/EDC calculating part (see element 46), a PO syndrome storing memory (see element 50), an EDC calculation result storing memory (see element 52) and an error correcting part (see element 54), which are coupled as shown. However, the prior art taken singly or in combination

Art Unit: 2133

fail to teach, anticipate, suggest, or render obvious a method of demodulating the data to generate an ECC block that comprises main data, a PI and PO, calculating a PI direction syndrome; writing said PI direction syndrome, said main data said PO into a data buffer; reading said main data and PO from said data buffer to an ECC decoder to calculate a PO direction syndrome and perform error correction decoder of the PO direction; when errors are found, correcting said PO direction syndrome and said PI direction syndrome, and writing corrected main data into said data buffer; reading said PI direction syndrome from said data buffer to said ECC decoder to perform error correction decoder of the PI direction and when errors are found, correcting said PO direction syndrome and said PI direction syndrome, and writing corrected main data into said data buffer. Consequently, claim 11 is allowed over the prior art.

Claims 12 and 31-33, which is/are directly or indirectly dependent/s of claim 11 are also allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

5. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Esaw Abraham whose telephone number is (571) 272-3812. The examiner can normally be reached on M-F 8-5.

Art Unit: 2133

If attempts to reach the examiner by telephone are successful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone numbers for the organization where this application or proceeding is assigned (571) 273-8300.

Information regarding the status of an Application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or PUBLIC PAIR. Status information for unpublished applications is available through Private Pair only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Esaw Abraham

Art unit: 2133

  
**DAVIDTON**  
**PRIMARY EXAMINER**

REPLACEMENT SHEET

EA  
07/13/05  
OK to enter

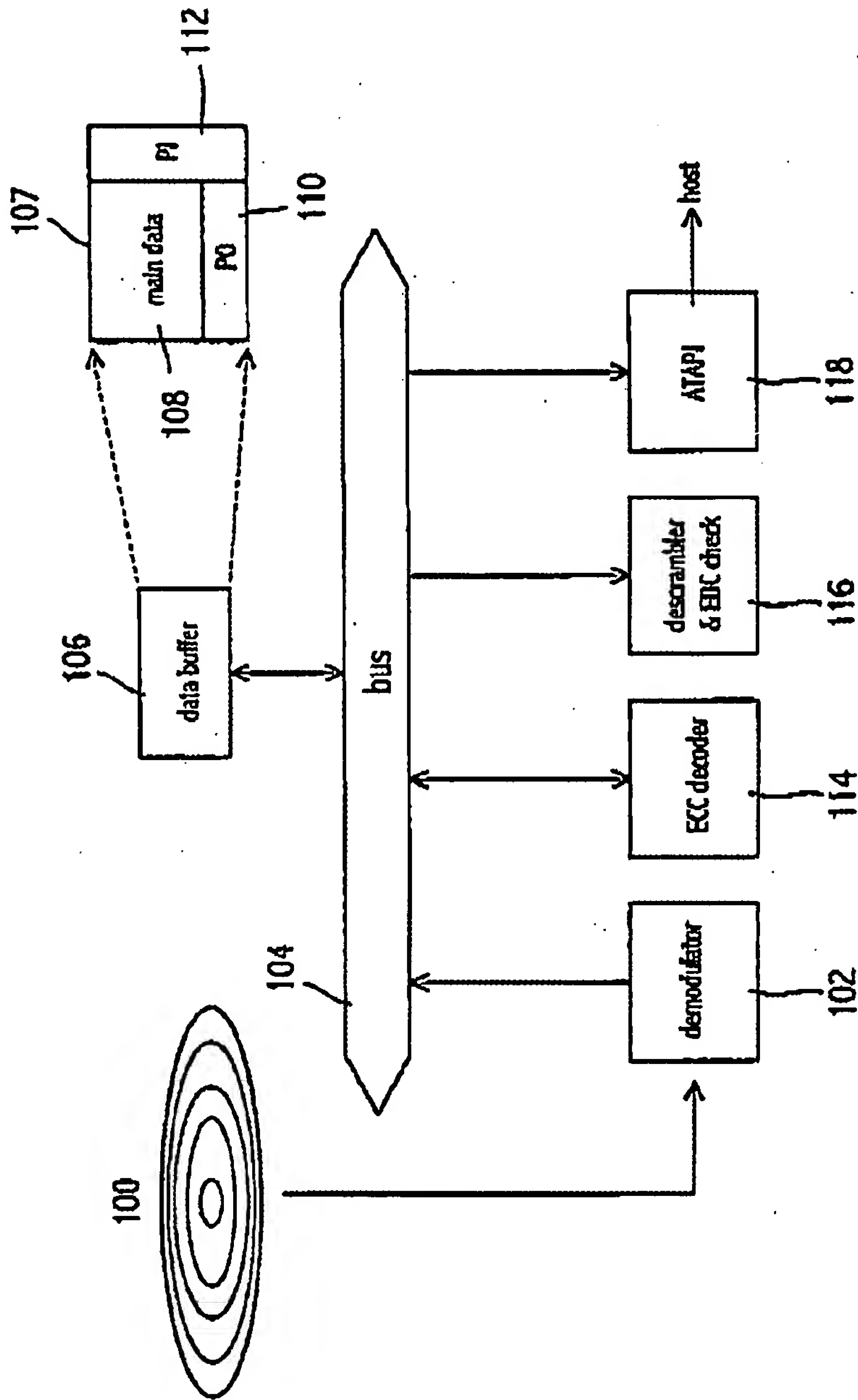


FIG. 1  
(RELATED ART)

## REPLACEMENT SHEET

201

demodulator 102 writes the demodulated ECC block 107 into the data buffer 106.

202

the ECC decoder 114 reads the ECC block 107 of the PI direction to perform the error correction decoding, then writes the corrected part of the ECC block 107 into the data buffer 106.

203

the ECC decoder 114 reads the ECC block 107 of the PO direction to perform the error correction decoding, then writes the corrected part of the ECC block 107 into the data buffer 106.

204

the descrambler and EDC check 116 reads the corrected main data 108 stored in data buffer 106 for descrambling the main data 108 and checking whether errors in the main data 108 are corrected.

205

ATAPI ( Advanced Technology Attachment Package Interface ) 118 reads the main data 108 stored in the data buffer 106, then descrambles and transmits the main data to the host.

FIG. 2

(RELATED ART)

## REPLACEMENT SHEET

EA  
07/13/05  
OK to enter

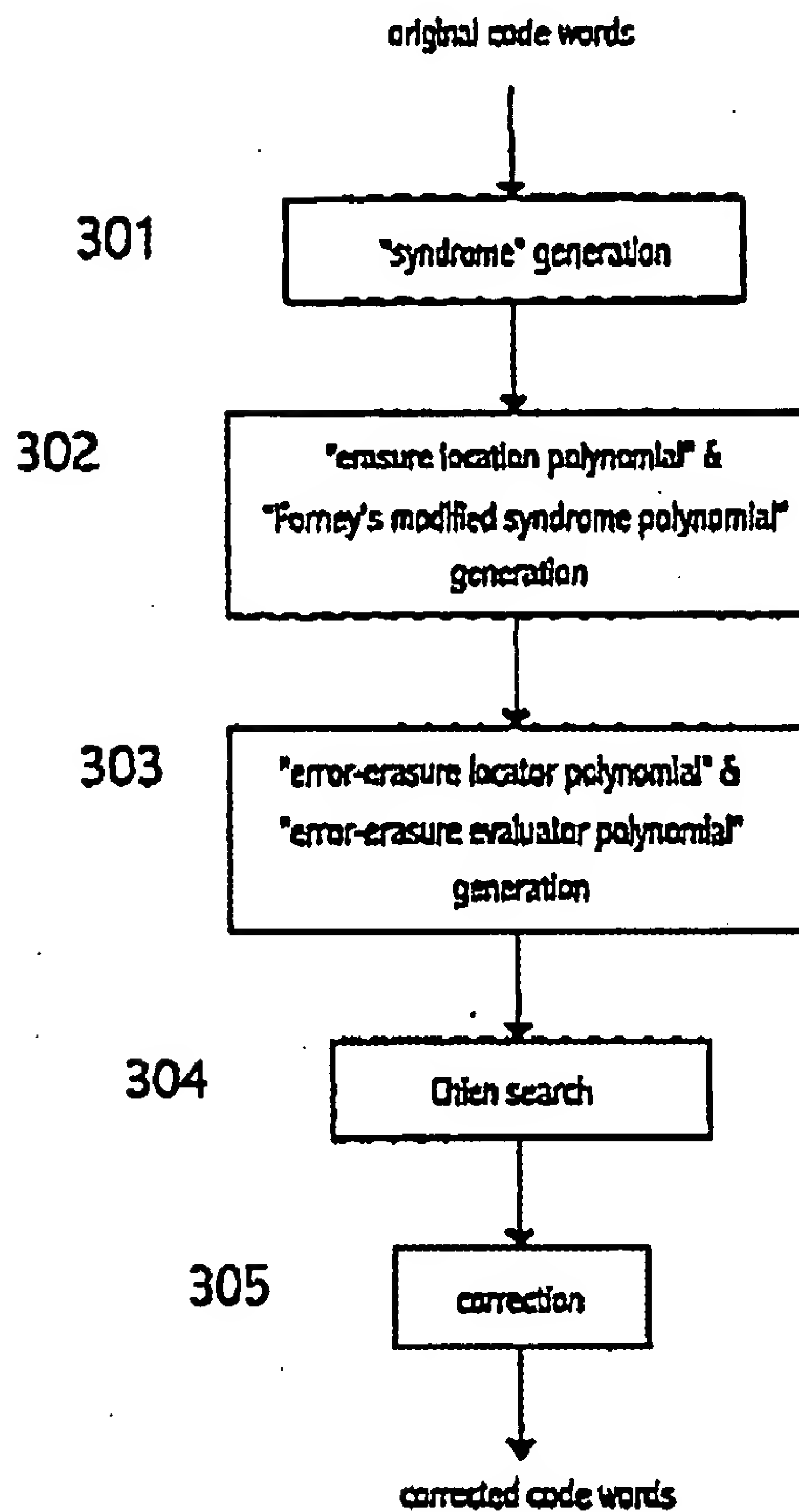


FIG. 3

(RELATED ART)